

AMENDMENT NO. 1 MARCH 2018
TO
IS 4923 : 2017 HOLLOW STEEL SECTIONS FOR STRUCTURAL USE —
SPECIFICATION

(Third Revision)

(Page 1, clause 4, Symbol x_1) — Substitute 'x₂ mm Convexity of a side of square or rectangular hollow section' for 'x₁ mm Convexity of a side of square or rectangular hollow section'.

(Page 1, clause 4, Symbol r) — Substitute 'θ' for 'r'.

(Page 3, clause 10.5) — Substitute 'θ' for 'r'.

(Page 3, clause 10.7, Fig. 5) — Substitute 'r_{max}' for 'r'.

[Page 4, section 2, clause 14.1 a), b), c), d) and f)] — Substitute the following for the existing:

- a) Thickness of all sizes
 - 1) Welded tubes : ± 7.5 percent
 - 2) Seamless tubes : ± 12.5 percent
- b) Outside dimensions of sides : ± 1 percent of length of the side to be measured with a minimum of ± 0.5 mm
- c) Weight
 - 1) On individual length : $\begin{matrix} +10 \\ -8 \end{matrix}$ percent
 - 2) On lots of 10 tonne, *Min* : ± 7 percent
- d) Squareness of corner : $90 \pm 2^\circ$
- f) Length
 - 1) Exact Length : ± 6 mm
 - 2) Random length : This may be obtained by arrangement between purchaser and manufacture

[Page 5, section 3, clause 18.1 a), b), c), d) and f)] — Substitute the following for the existing:

- a) Thickness of all sizes
 - 1) Welded tubes : ± 7.5 percent
 - 2) Seamless tubes : ± 12.5 percent
- b) Outside dimensions of sides : ± 1 percent of length of the side to be measured with a minimum of ± 0.5 mm
- c) Weight
 - 1) on individual length : $\begin{matrix} +10 \\ -8 \end{matrix}$ percent
 - 2) On lots of 10 tonne, *Min* : ± 7 percent
- d) Squareness of corner : $90 \pm 2^\circ$
- f) Length
 - 1) Exact Length : ± 6 mm
 - 2) Random length : This may be obtained by arrangement between purchaser and manufacture

[Page 5, clause 18.1 j)] — Delete 5.65 \sqrt{A} given under straightness.

(Page 5, clause 19.2) — Substitute the following for the existing clause:

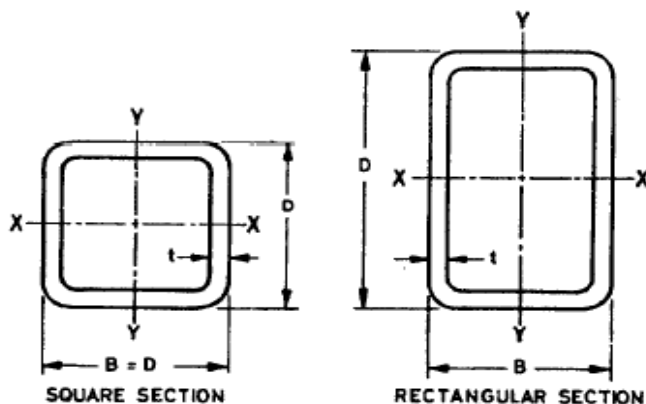
‘19.2 When tested in accordance with IS 1608, the tensile properties of cold formed sections and elongation percentage on a gauge length of $5.65 \sqrt{A}$ (where, A is the cross-sectional area of the section) shall be as given in Table 4.’

[Page 6, Annex A] — Substitute the following for the existing:

ANNEX A

(Clause 8.1)

GEOMETRICAL DATA OF HOLLOW SECTIONS



$$\text{Area of cross-section} = A = 2t [(B - 4t) + (D - 4t) + \frac{3}{2} \pi t] \text{ in cm}^2$$

$$\text{Weight (kg/m)} = W = 0.785 A \text{ in cm}^2$$

For X - X axis :

$$\begin{aligned} \text{Moment of inertia} = I_x &= t \frac{(D - 4t)^3}{6} + \frac{1}{2} \left[\frac{(B - 4t) t^3}{3} + (B - 4t) (D - t)^2 t \right] + \\ &\frac{\pi t^4}{108} \left[405 - \frac{3 \cdot 136}{\pi^2} \right] + 3 \pi t^2 \left[\frac{9 \pi (D - 4t) + 56 t}{18 \pi} \right]^2 \text{ in cm}^4 \end{aligned}$$

$$\text{Elastic modulus} = Z_x = \frac{2 I_x}{D} \text{ in cm}^3$$

$$\text{Plastic modulus} = S_x = t/2 (D - 4t)^2 + t (B - 4t) (D - t) + \frac{t^2}{6} [9 \pi (D - 4t) + 56 t] \text{ in cm}^3$$

$$\text{Radius of gyration} = R_x = \sqrt{\frac{I_x}{A}} \text{ in cm}$$

For Y - Y axis :

$$\begin{aligned} \text{Moment of inertia} = I_y &= \frac{t (B - 4t)^3}{6} + \frac{1}{2} \left[\frac{(D - 4t) t^3}{3} + (D - 4t) (B - t)^2 t \right] + \\ &\frac{\pi t^4}{108} \left[405 - \frac{3 \cdot 136}{\pi^2} \right] + 3 \pi t^2 \left[\frac{9 \pi (B - 4t) + 56 t}{18 \pi} \right]^2 \text{ in cm}^4 \end{aligned}$$

$$\text{Elastic modulus} = Z_y = \frac{2 I_y}{B} \text{ in cm}^3$$

$$\text{Plastic modulus} = S_y = t/2 (B - 4t)^2 + t (D - 4t) (B - t) + \frac{t^2}{6} [9 \pi (B - 4t) + 56 t] \text{ in cm}^3$$

$$\text{Radius of gyration} = R_y = \sqrt{\frac{I_y}{A}} \text{ in cm}$$

NOTE — Letter symbols denoting various dimensions are the same as those used in Tables 1 and 2.

(MTD 19)